

AMENDMENT TO THE CLAIMS

1. (previously presented): An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

- a plurality of process models, each model related to a physical implementation of an industrial process;
- a model selection input configured to receive a selected model, the selected model uniquely identifying one of the process models;
- a process signal input configured to receive a plurality of process signals related to the process; and
- a root cause output indicative of a source of the aberration in the process, the root cause output a function of the selected model and the process signals.

2. (previously presented): The apparatus of claim 1 including a model options input configured to receive model options related to devices which are optional in the selected model, and wherein the root cause output is further a function of the model options.

3. (previously presented): The apparatus of claim 2 wherein the model options comprise process signals.

4. (previously presented): The apparatus of claim 1 wherein each model includes a rule base.

5. (previously presented): The apparatus of claim 4 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

6. (previously presented): The apparatus of claim 4 wherein each model includes a plurality of rule bases, each rule base

related to the number of process signals.

7. (previously presented): The apparatus of claim 1 wherein the apparatus is implemented in a PC.

8. (previously presented): The apparatus of claim 1 wherein the apparatus is implemented in a process device.

9. (previously presented): The apparatus of claim 8 wherein the process device comprises a transmitter.

10. (previously presented): The apparatus of claim 8 wherein the process device comprises a controller.

11. (previously presented): The apparatus of claim 1 wherein the model includes a graphical model which provides a graphical representation of the physical implementation of the process.

12. (previously presented): The apparatus of claim 1 wherein the plurality of process signals comprise a primary process variable (PV), a control demand (CD) signal, and a setpoint (SP).

13. (previously presented): The apparatus of claim 12 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

~~12~~14. (currently amended): The apparatus of claim ~~10~~1 wherein the plurality of process signals further includes a redundant primary process variable (PV).

~~13~~15. (currently amended): The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

~~14~~16. (currently amended): The apparatus of claim 1 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

~~15~~17. (currently amended): A diagnostic method in an industrial process for identifying a root cause of an aberration in an industrial process, comprising:

selecting a process ~~mode~~model from a plurality of process models, each model related to a physical implementation of an industrial process, the selected model uniquely identifying one of the process ~~models~~model wherein each model includes a rule base;

receiving a plurality of process signals related to the process; and

identifying a root cause indicative of a source of the aberration in the process, the identifying as a function of the selected model and the process signals.

~~16~~18. (currently amended): The method of claim ~~15~~17 including receiving model options related to devices which are optional in the selected model, and wherein identifying the root cause is further a function of the model options.

~~17~~19. (currently amended): The method of claim ~~16~~18 wherein the model options comprise process signals.

~~18~~20. (cancelled)

1921. (currently amended): The method of claim 1817 wherein the rule base provides a relationship between the process signals and a root cause of an aberration in the process.

2022. (currently amended): The method of claim 1817 wherein each model includes a plurality of rule bases, each rule base related to the number of process signals.

2123. (currently amended): A PC implementing the method of claim 1517.

2224. (currently amended): A process device implementing the method of claim 1517.

2325. (currently amended): The method of claim 1517 wherein the model includes a graphical model and the method including displaying a graphical representation of the physical implementation of the process.

2426. (currently amended): The method of claim 1517 wherein the plurality of process signals comprise a primary process variable (PV), a control demand (CD) signal, and a setpoint (SP).

2527. (currently amended): The method of claim 2426 wherein the plurality of process signals further includes a process signal indicative of an actual control value provided in response to the control demand (CD).

2628. (currently amended): The method of claim 2426 wherein the plurality of process signals further includes a redundant primary process variable (PV).

~~27~~29. (currently amended): The method of claim ~~15~~17 wherein at least one of the plurality of process models is representative of a liquid level process control loop.

~~28~~30. (currently amended): The method of claim ~~15~~17 wherein at least one of the plurality of process models is representative of a process fluid flow control loop.

~~29~~31. (currently amended): A storage medium containing computer instructions configured to implement the method of claim ~~1~~17.

~~30~~32. (currently amended): An industrial process diagnostic apparatus for identifying a root cause of an aberration in an industrial process, comprising:

means for storing a plurality of process models, each model related to a physical implementation of an industrial process;

means for receiving a model selection input uniquely identifying one of the process models;

means for receiving a plurality of process signals related to the process; and

means for identifying a root cause indicative of a source of the aberration in the process as a function of the selected model and the process signals.